

## CLAIMS

What is claimed is:

- 1    1.    A system for providing simultaneous context based audio interaction among a  
2           plurality of participants in a network based gaming environment, the system  
3           comprising:  
4           a game server in communication with a plurality of game participants, the game  
5           server capable of hosting the network based gaming environment and maintaining  
6           a game state profile for each game participant; and  
7           an audio conference server in communication with the game server, the audio  
8           conference server capable of hosting a voice over internet protocol based audio  
9           conference between two or more game participants;  
10          wherein the audio conference server establishes the audio conference in response  
11          to instructions from the game server.
- 1    2.    The system of claim 1, wherein the participants in the audio conference are  
2           determined by the game server based upon the game state profiles of the game  
3           participants.
- 1    3.    The system of claim 1, wherein the participants in the audio conference comprise  
2           a shared context.
- 1    4.    The system of claim 1, wherein the game server comprises a session initiation  
2           protocol stack and the audio conference is a session initiation protocol based  
3           voice over internet protocol communication.
- 1    5.    The system of claim 1, wherein each participant comprises an audio  
2           communication device and the system comprises at least one audio mixer in

3 communication with the audio server and each participant audio communication  
4 device to provide the audio mixing for the audio conference.

1 6. The system of claim 5, wherein the audio communication device comprises an  
2 internet protocol phone, a software based phone or conventional telephone  
3 equipment.

1 7. The system of claim 5, wherein the audio mixer is centrally located at the audio  
2 server.

1 8. The system of claim 5, further comprising a plurality of distributed audio mixers,  
2 each audio mixing in communication with one of the audio conference  
3 participants.

1 9. The system of claim 1, wherein the game server is capable of managing a  
2 plurality of simultaneous and independent audio conferences, each audio  
3 communication comprising two or more game participants.

1 10. The system of claim 9, wherein each game participant can simultaneously  
2 participate in two or more independent audio conferences.

1 11. The system of claim 1, further comprising a plurality of distributed audio servers  
2 in communication with the game server, each audio server capable of hosting an  
3 audio conference between two or more game participants.

1 12. The system of claim 1, further comprising a plurality of distributed game servers.

- 1 13. A method for providing simultaneous context based audio interaction among a  
2 plurality of participants in a network based gaming environment, the method  
3 comprising:  
4 establishing a network based game environment containing a plurality of game  
5 participants;  
6 maintaining a game state profile for each one of the game participants; and  
7 establishing one or more voice over internet protocol based audio conferences  
8 among the game participants based upon the game state profiles.
- 1 14. The method of claim 13, wherein the step of maintaining a game state profile  
2 comprises maintaining a game state profile for each participant in a single  
3 centralized game server.
- 1 15. The method of claim 13, wherein the step of maintaining a game state profile  
2 comprises maintaining a game state profile for each participant in each one of a  
3 plurality of distributed game servers associated with each participant.
- 1 16. The method of claim 13, wherein the step of establishing an audio conference  
2 comprises establishing a session initiation protocol based voice over internet  
3 protocol based audio conference.
- 1 17. The method of claim 13, wherein the step of establishing an audio conference  
2 comprises determining at least one group of game participants possessing a shared  
3 context that permits the transmission or receipt of audio communications among  
4 game participants in the group.
- 1 18. The method of claim 17, further comprising modifying the group of participants  
2 based upon changes in the game state profiles of game participants in the group.  
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- 1 19. The method of claim 18, wherein the step of modifying the group of participants  
2 comprises removing participants or adding participants.
- 1 20. The method of claim 17, further comprising determining a plurality of groups of  
2 participants wherein each group of game participants possessing a shared context  
3 that permits the transmission or receipt of audio communications among game  
4 participants in that group.
- 1 21. The method of claim 20, further comprising dynamically switching at least one  
2 participant between two distinct groups.
- 1 22. The method of claim 13, wherein the step of establishing an audio conference  
2 comprises delivering an audio signal to each audio conference participant that  
3 comprises the sum of all received audio signals from all other audio conference  
4 participants.
- 1 23. The method of claim 13, wherein the step of establishing an audio conference  
2 comprises determining an audio feature vector for each pair of audio conference  
3 participants based upon the game state profiles associated with the participants;  
4 and  
5 modifying audio signals transmitted between the pair of audio conference  
6 participants in accordance with the audio feature vector.
- 1 24. The method of claim 23, wherein the audio feature vector comprises information  
2 about distance, direction, communication medium, transmission frequency or  
3 transmission amplitude.

- 1 25. The method of claim 23, further comprising modifying the audio feature vector in  
2 response to changes in the game state profiles of the audio conference  
3 participants.
- 1 26. A computer readable medium containing a computer executable code that when  
2 read by a computer causes the computer to perform a method for providing  
3 simultaneous context based audio interaction among a plurality of participants in  
4 a network based gaming environment, the method comprising:  
5 establishing a network based game environment containing a plurality of game  
6 participants;  
7 maintaining a game state profile for each one of the game participants; and  
8 establishing one or more voice over internet protocol based audio conferences  
9 among the game participants based upon the game state profiles.
- 1 27. The computer readable medium of claim 26, wherein the step of maintaining a  
2 game state profile comprises maintaining a game state profile for each participant  
3 in a single centralized game server.
- 1 28. The computer readable medium of claim 26, wherein the step of maintaining a  
2 game state profile comprises maintaining a game state profile for each participant  
3 in each one of a plurality of distributed game servers associated with each  
4 participant.
- 1 29. The computer readable medium of claim 26, wherein the step of establishing an  
2 audio conference comprises establishing a session initiation protocol based voice  
3 over internet protocol based audio conference.
- 1 30. The computer readable medium of claim 26, wherein the step of establishing an  
2 audio conference comprises determining at least one group of game participants

3       possessing a shared context that permits the transmission or receipt of audio  
4       communications among game participants in the group.

1   31.   The computer readable medium of claim 30, further comprising modifying the  
2       group of participants based upon changes in the game state profiles of game  
3       participants in the group.

1   32.   The computer readable medium of claim 31, wherein the step of modifying the  
2       group of participants comprises removing participants or adding participants.

1   33.   The computer readable medium of claim 30, further comprising determining a  
2       plurality of groups of participants wherein each group of game participants  
3       possessing a shared context that permits the transmission or receipt of audio  
4       communications among game participants in that group.

1   34.   The computer readable medium of claim 33, further comprising dynamically  
2       switching at least one participant between two distinct groups.

1   35.   The computer readable medium of claim 26, wherein the step of establishing an  
2       audio conference comprises delivering an audio signal to each audio conference  
3       participant that comprises the sum of all received audio signals from all other  
4       audio conference participants.

1   36.   The computer readable medium of claim 26, wherein the step of establishing an  
2       audio conference comprises determining an audio feature vector for each pair of  
3       audio conference participants based upon the game state profiles associated with  
4       the participants; and  
5       modifying audio signals transmitted between the pair of audio conference  
6       participants in accordance with the audio feature vector.

1 37. The computer readable medium of claim 36, wherein the audio feature vector  
2 comprises information about distance, direction, communication medium,  
3 transmission frequency or transmission amplitude.

1 38. The computer readable medium of claim 36, further comprising modifying the  
2 audio feature vector in response to changes in the game state profiles of the audio  
3 conference participants.